

Remarks

Claims 1-3 and 5 have been canceled. Only amended independent claim 4 remains.

Claims 1-3 have been rejected under Section 102(b) as being anticipated by Iwao et al. (JP 2001-056925). Iwao teaches the same disk structure with a RuFe antiferromagnetically coupling film having the same composition as in applicants' claims 1-3. Thus the Section 102(b) rejection is proper and claims 1-3 have been canceled.

Claims 4-5 have been rejected under Section 103(a) as being obvious over Chen (U.S. Patent 6,759,149 B1) in view of Iwao. Claim 4 has been amended to include the limitations of claim 5 and is believed allowable over the combination of Chen and Iwao for the following reasons.

While Iwao teaches the same disk structure with the RuFe antiferromagnetically coupling film having the same composition as in applicants' claims 1-3, there is a key functional difference between Iwao and applicants' invention. This difference renders the invention in applicants' amended claim 4 non-obvious over the combination of Chen and Iwao. Iwao teaches that the sole purpose of the RuFe antiferromagnetic coupling film is to *improve the lattice matching* with the subsequently deposited ferromagnetic film. In contrast, applicants' invention is based on the discovery that the addition of Fe to the RuFe in the claimed composition range *improves the exchange coupling between the two ferromagnetic films by a factor of two*. (Specification, page 8, lines 1-20). This enables the lower ferromagnetic film in the AF-coupled structure to be thicker and/or have a higher coercivity, which is not taught or suggested by Iwao.

In the structure of applicants' claim 4, wherein a non-AF-coupling spacer film is on top of the AF-coupled structure and a *third* ferromagnetic film is on top of the non-AF-coupling spacer film, the bottom ferromagnetic film (the *first* ferromagnetic film in claim 4) is farther from the write head than it would be without the non-AF-coupling spacer film and the third ferromagnetic film. Thus without the increased exchange field provided by RuFe AFC film the field from the write head would have to be increased to cause the first ferromagnetic film to be switched during writing. There is no teaching or suggestion in Chen or Iwao that would motivate one skilled in the art to combine these

references so that a substantially thicker recording layer could be made without the need to increase the write field from the write head.

In addition, Chen does *not* teach the structure of applicant's amended claim 4; it teaches two AF-coupled structures separated by a CoCr non-AF-coupling spacer film. Applicants' amended claim 4 structure is an AF-coupled structure and a *single (third) ferromagnetic film* separated by a non-AF-coupling spacer film. This type of disk structure, but without the improvement of applicants' RuFe AFC film to increase the exchange coupling, is in the co-pending application cited in applicants' specification (page 4, lines 24-29).

Applicants believe claim 4 is allowable and the application is now in condition for Allowance.

The Examiner is invited to call Applicants' attorney if a telephone conference will expedite the prosecution of this application.

Respectfully submitted,



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